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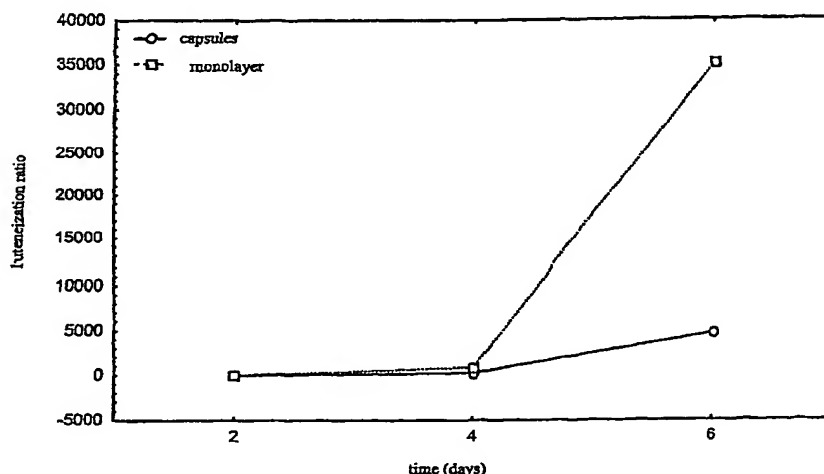
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(54) Title: **THREE-DIMENSIONAL MAMMALIAN OVARIAN FOLLICULAR CELL AND OVARIAN FOLLICLE CULTURE SYSTEMS IN A BIOCOMPATIBLE MATRIX**



(57) Abstract: A process for encapsulating and immobilising mammalian stem cells, ovarian follicular cells, gametes, ovarian follicles or mammalian embryos which are able to auto-organise into three-dimensional structures *in vitro*, and express biological functions in a manner similar to that which is observed in the organism *in vivo* is described. The capsules are constituted by: a nucleus containing stem cells, ovarian follicular cells, gametes, ovarian follicles or mammalian embryos and/or a biocompatible and/or biodegradable polymer; a semi-permeable membrane constituted by a divalent or trivalent metal ion salt of alginic acid, optionally cross-linked on the inner and/or outer surface and/or on both surfaces, optionally vehicularising a second or more cellular species. The cells and follicles prepared and cultivated using this methodology are used for the *in vitro* and/or *in vivo* production of peptides, proteins, antibodies, hormones and hormone precursors, metabolites and catabolites typical of these cellular structures, plasma membranes, nuclear membranes, cytoplasmic organelles, somatic cell nuclei or gametes and embryos.

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